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Changing education – QA and the shift from teaching to learning

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Proposal

Title: Accreditation, Regulation and Self Evaluation . a Game Theoretic Viewpoint

Abstract (150 words max):

Higher Education Institutes operate in the forefront of knowledge and are entrusted with the provision of relevant knowledge, tools and methods to their customers . our society.

HEIs operate in a quasi-market; that is, their customers lack the abilities to effectively and efficiently assess the quality of rendered services. Thus, assessing and regulating bodies were formed, either state-initiated or voluntary, aiding the public in getting a perception of the quality of academic services.

The external involvement takes the form of periodical processes of quality self evaluation done by academic units, complemented by external evaluations and assessment reports.

We will look into the effectiveness of this approach from a game theoretical point of view and suggest that adherence to well proven frameworks of optimally-constructed bargaining and cooperative games may be most beneficial to all stakeholders, most of all our present and future societies.

Text of paper (3000 words max):

Higher Education Institutes provide important services to national and global societies and economies and, most importantly, to future societies. These services include the advancement of knowledge, methods and tools; teaching and educating; and supporting the community with effective economic, scientific and welfare activities.

John Forbes Nash (1950) describes a bargaining game between two parties in which rationality and cooperation between the two will yield both a benefit far larger than their potential benefits had they not cooperated. In his own words: ‰ two-person bargaining situation involves two individuals who have the opportunity to collaborate for mutual benefit in more than one way+.

Myerson (1991) describes games as "the study of mathematical models of conflict and cooperation between intelligent rational decision-makers". There are different types of games, such as zero-sum games (in which one player¢ loss is its opponent¢ gain), prize-seeking games (in which players compete for an externally-induced reward but are not bound to bear losses) and Nash bargaining games, in which all players may maximize their total gains.

Game theory is widely applied in economic situations, such as transactions among bodies (stakeholders). Transactions are usually made under agreements between the involved bodies, all of which are interested in drawing benefits from the mutual activity.

Quality is a measure applied to a transaction among bodies. The level of quality is high if the needs of all stakeholders are met.

The framework within which HEIs provide services to society can be seen as a transaction and it does fall into the concept of a game. Quality can be high in a win-win transaction, in which all parties are rational, understand the rules and regulations of the trade, understand one another's needs, and are basically cooperative and trusting.

A ‰quasi-market+ (Amaral, 2006) is one in which some stakeholders (say, recipients of goods or services) lack the know-how, skills, capabilities and capacity to pre-examine the product or service in order to verify that it is indeed meeting their needs. Education and teaching services are such quasi-markets, as well as some markets such as medical services and products, food, transport products (automobiles, aircraft etc.). In cases of quasi-markets, governing authorities take upon themselves the task of protecting the customers (their voters) from wrongdoings (real or presupposed) done by

service or product providers. Although the chances of damaging services are low, damages created by nonconforming or inappropriate services or products could be high, therefore the risk of wrongdoings is not small. Authorities appoint official bodies governing, licensing and regulating suppliers in quasi-markets in order to lower these risks. This phenomenon is well known and experienced in the education market.

Higher education's customers must trust the ability of the HEI to effectively provide them with the knowledge, tools, capabilities and skills they need in order to succeed in life. The HEIs determine the types of services they provide, the contents, processes and methods. If the customers must trust the HEIs' capabilities, why wouldn't they trust the quality of their delivery processes? In a quick poll conducted among hundreds of postgraduate students, roughly 60% of them preferred to see an external body inspecting and regulating the quality of their universities' work processes.

The regulatory authority is a representative of all the customers of HEIs, and it is much more capable than ordinary people (customers) in evaluating the HEIs' abilities to satisfy their educational needs. We may describe the situation as a 2-player bargaining game in which the customers (society) and their representatives are player 1, and the EUIs, the service providers, are player 2. Both parties wish to maximise their respective benefits drawn, society as well as HEIs which are, in fact, parts of this society they are serving.

As is customary in virtually all external control activities (licensing, certificating, qualifying, accrediting etc.), most of the preparatory work is being assigned to the regulated organizations themselves. Thus, organisations spend time and manpower in the preparation of data, information and reports for the external bodies.

Self evaluation of quality in an organisation is similar to a self-search process a person goes through (by choice). Both search for existential purposes and aims, goals, challenges, achievements and perpetual improvement. When goals are defined, the organisation, or person, embarks upon a long journey of achieving them. The self evaluation of quality is but a first step in a long process of serial improvement programmes and achievements.

Of all quality management frameworks . inspection, test, supervision, control, auditing, qualification, accreditation - self responsibility for quality is the most enlightened and progressive one. It places the responsibility for quality in the hands of the body best able to quality-manage all aspects of the organisation . the organisation itself. It places the interface between supplier and customer on the most advanced parameter: trust. Naturally, an economy cannot exist without certain degrees of mutual trust; but, as explained above, complete trust can never be observed, so, trust-based economy is difficult to maintain in the long run. Society must equip itself with certain retaliatory capabilities in order not to stoop to an aggressive (non-survivable) economy.

The game between the regulating body and the academic unit

Based on our observations of the dynamics between regulating and regulated bodies over several years in several countries, we present nine common outcomes of their interfaces. We select three most prominent strategies used by each side:

The regulator –

A1. Declare a self evaluation program in academic units and convey them the process outline, rules, requirements, timetable etc. in a clear document. The self evaluation process will be followed by a visit of an external committee, providing the evaluated unit with external perspectives and feedback, opening up a continual improvement program.

A2. Declare a self evaluation program in academic units and convey them the process outline, rules, requirements, timetable etc. in a clear document. Appoint a committee of peers, well acquainted with the subject matter taught by the unit. Instruct the peer committee to examine and report different aspects of the unit's conduct. Pay attention to deviations from approvals and accreditations given by the regulating body.

A3. Declare a self evaluation program in academic units and convey them the process outline, rules, requirements, timetable etc. in a clear document. Appoint an inquiry committee on your behalf, instruct it to perform a thorough assessment and seek evidence for the unit's adherence to accreditations, approved programs and courses, budget management, internal tension & dissatisfaction etc. Locate weaknesses in the unit's own report and pursue them further. Report any suspicions, unusual observations or any other deviations from expected conduct.

The academic unit –

B1. Accept the challenge that the regulating authority presented and embark upon a long-range continual improvement journey for the unit's conduct and performance. As an opening step, evaluate the unit's processes, verify the existence and clear understanding by all of the unit's mission, vision, goals, strategy and action plans. Expose weaknesses and plan to strengthen points that lead to them.

B2. Prepare yourself for a peer review, in which the unit will be examined about its teaching-related conduct. Get ready to face questions by colleagues who are familiar with the unit's domain, culture, processes and performance.

B3. Prepare yourself for an investigating committee sent by the regulating authority to seek and trace any deviations from approved procedures. Present a self evaluation report answering the necessary, explicitly required, data. Try to emphasize strengths and minimize the exposure of weaknesses.

<table>
<tr><td colspan="5" align="center">The academic unit</td></tr>
<tr><td></td><td></td><td>B1</td><td>B2</td><td>B3</td></tr>
<tr><td rowspan="3">The regulatory authority</td><td>A1</td><td>u_{11}</td><td>u_{12}</td><td>u_{13}</td></tr>
<tr><td>A2</td><td>u_{21}</td><td>u_{22}</td><td>u_{22}</td></tr>
<tr><td>A3</td><td>u_{31}</td><td>u_{32}</td><td>u_{33}</td></tr>
</table>

Combinations of strategies (A_i, B_j) used in the game lead to nine main outcomes:

u_{11}. The academic unit undergoes a thorough process of self search and evaluation leading to clear concepts of mission, vision and improvement plans. The external committee provides the unit with helpful perspectives, feedback and insights, strengthening the process. Improvement plans are already under way.

u_{21}. The academic unit undergoes a thorough process of self search and evaluation, leading to clear concepts of mission, vision and improvement plans. The external committee concentrates mainly on the daily conduct of the unit, expressing its views on syllabi, course constructions, and teachersqassessments. The unit can adapt itself quickly to this dynamics of a peer review and can draw some benefits from their remarks.

u_{31}. The academic unit undergoes a thorough process of self search and evaluation, leading to clear concepts of mission, vision and improvement plans. The external committee practically ignores the report, investigates different aspects of the unit's conduct, questions staff and students behind closed doors and searches for objective evidence. Its final report makes use of weaknesses reported by the unit following its own self search efforts.

u_{12}. The academic unit prepares itself for a peer review. The external committee, puzzled by a vague report submitted by the unit opens the discussions with some feedback, quickly discovering

that the unit did not perform a deep-enough evaluation process. The committee is nevertheless trying to explain what they expected to see and provides several tips and ideas for future quality performance.

u_{22}. The academic unit prepares itself for a peer review. The external committee indeed performs a peer review. If the committee is generally pleased with the conduct of the unit, its report is positive and all are pleased.

u_{32}. The academic unit prepares itself for a peer review, but is somewhat disappointed to realise that the external committee usually investigates its performance rather than reviewing its conduct.

u_{13}. The external committee, ready to openly discuss a self evaluation process, realises that the unit's representatives are not familiar with this topic. The committee either terminates the visit or tries to explain what the unit was expected to go through.

u_{23}. The external committee, not always identifying the strategy used by the reviewed unit, is not as harsh and invasive as expected. The visit leaves no mark on the daily conduct of the unit.

u_{33}. The external committee behaves exactly as expected by the unit. The committee might unearth some topics that the unit was trying to hide, but as the unit was prepared for this game it is disappointed only if caught in some major wrong doing.

Deviations from a cooperative bargaining game

1. Of the nine possible outcomes of the game, six are not expected by at least one of the players as a result of a strategy in what is supposed to be a cooperative, bargaining game. The severities of the outcomes are not equal, but some (such as u_{31}) are not helpful to future quality efforts in the unit. In fact, u_{31} has deterred too many academics as soon as they began to emerge (Harvey, 2005). Cooperative and bargaining games operate under the assumption of symmetry between the players, one aspect of which is complete awareness of one another's possible strategies.

    The phenomenon of a game in which players are not completely familiar with the others' sets of strategies was named "hypergame" by Bennett & Dando (1979). The game (A_i, B_j), $(1 \leq i, j \leq 3)$ presented above describes a hypergame because players were not always privy to the other's strategies.

2. Symmetry was jeopardized not only because of the hypergame syndrome, but because the regulating body assumes, in fact, a double role, one of which is of a licensing and accrediting body, the other being that of a regulatory body. This duality might drive the academic units to seek strategies B_2 or B_3 rather than B_1.

Academic quality evaluation today

Of the three main strategies available to the regulating body, strategy A_2 proved to be the most popularly used. As advanced, complex processes of quality culture instilment are not commonly available, strategy A_1 is too complicated and risky to adopt. It requires a long terms affiliation process leading to adequate professional knowledge, experience and competence with quality evaluation processes.

The adoption of A_3 as strategy has invariably confronted negative reactions, being too far from the formal introduction, made by the regulating body, of thorough self evaluation of quality and its virtues. A_3 was only rarely used.

This left the regulator with strategy A_2, an intuitively clear and unintimidating process, well known to the academics that are going to form the regulator's external committees. The academic units, too, found (A_2, B_2) to be the less intimidating, less demanding option.

Several variants of quality evaluation or assessment processes were observed in several countries in recent years. These were peer review sessions (described here as (A_2, B_2) games), reaccreditation rounds, and the transformation of study programs evaluations into HEI-level evaluation, with a lower level of attention given to individual programs or to academic units. More freedom was given to HEIs in choosing members of the external committees and the choice of actual units or programs presented to the reviewers.

Where should academic quality evaluation be today?

Higher Education is a national, and in many cases global, market. The inherent fear of populations from malpractice by quasi-market suppliers is real, but must not get carried away into excessive indulgence with controlling activities. The bottom line is that society does trust HEIs in creating adequate systems for the provision of knowledge, tools, skills and capabilities for their students. External regulation is a must, of course, and is here to stay and help. But both HEIs and regulators must clearly and precisely define their roles as players in the quality promotion game: this is not a simple bargaining game between player A and B, each of which trying to maximize its revenues, but both players are serving one and the same customer: society, present and future. The HEIs' main mission is not just to survive and flourish, but to equip society with the abilities to advance its total assets . economical, scientific, managerial, behavioural, spiritual etc.

HEIs must not forget they are first and foremost servants of future societies, nor do regulatory bodies. They are appointed representatives of the (future) society and must not forget this. As described in Kalai & Smorodinski's (1975) cooperative games, if one player cooperates with another in the game, they can be treated as one player (leaving the prospective prize-sharing phase to their own consideration). This is not just a mathematical-theoretical observation, this is reality. If the regulating body's personnel, or delegates, deviate from their precisely defined role as representatives of the society and lure into game-irrelevant, human-behavioural aspects of their part in the dynamics of evaluating and assessing a unit's performance, the originally intended spirit of this game evaporates, and the game converges into a different one (see, for example only, game (A_2, B_2) above).

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Questions for discussion:

1. How realistic is any hope for the adoption of this talk's recommendation?
2. Is it possible to place full and sole responsibility for quality in the hands of the service provider?
3. Is it possible to limit question 2 to HEIs alone?
4. Are there any clandestine true quality improvement efforts applied but concealed from the regulator's attention, for fear of criticism or hassle?